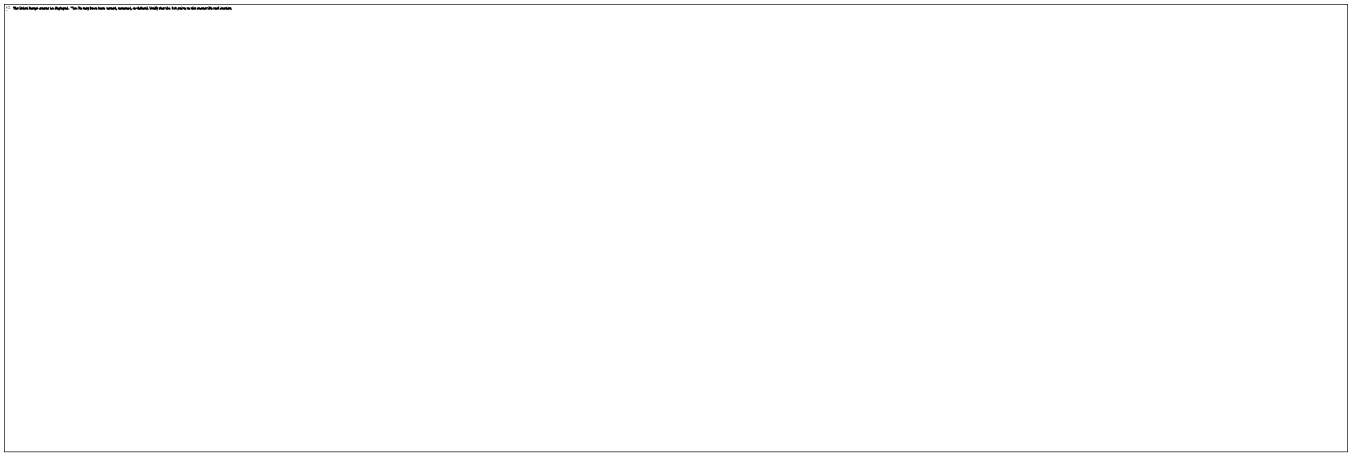
Message

From: 2023 Sediments Conference [Sediments2023@scgcorp.com]
Sent: 7/29/2022 8:59:13 PM
To: dberlin@anchorqea.com; Sediments2023@scgcorp.com
Subject: Abstract Submission for 2023 Sediments Conference



Abstract Submission Confirmation Email

Dan Berlin,

Thank you for submitting an abstract for the 2023 Sediments Conference , scheduled for January 9–12, 2023, in Austin, Texas. The abstract has been received and recorded as shown below.

In October 2022, corresponding/presenting authors of all abstracts will receive emails stating placement decisions. For each abstract accepted for the program, the email will state the platform or poster session to which it was assigned and provide information on preparing the presentation and submitting an updated abstract to replace the review abstract.

Note: No financial assistance is available to support registration or other costs of attending the Conference. All presenting authors and session chairs are expected to register and pay the applicable technical-program registration fees. This policy is necessary because registration fees are the major source of funding for the Conference and a significant percentage of registrants will make presentations or chair sessions.

Abstract Inquiries

Questions about abstract submittal should be addressed to sedimentscon@battelle.org, with the subject line "Abstract Submittal Inquiry," or contact Gina Melaragno (Battelle) at 614-424-7866.

Abstract Submission Summary

Conference: **The Eleventh International Conference on Remediation and Management of Contaminated Sediments**

Title: **Development of Sediment Anthropogenic Background for the East Waterway Using Upstream Suspended Sediments**
Authors: **D. Berlin, R. Sanga, B. Spangler, J. Florer, D. Williston, J. Stern, P. Rude, and A. Crowley**
Preferred Format: **platform**
Applicable Topics: **3o,5i**
New Topic Area?:
Uploaded Abstract File Name: Berlin_et_al_AnthropogenicBackground_Battelle_2023_Abstract.docx

Abstract

Development of Sediment Anthropogenic Background for the East Waterway Using Upstream Suspended Sediments

Dan Berlin (dberlin@anchorqea.com) (Anchor QEA, LLC, Seattle, WA, USA), Ravi Sanga (sanga.ravi@epa.gov) (U.S. Environmental Protection Agency, Seattle, WA, USA), Brick Spangler and Joanna Florer (Port of Seattle, Seattle, WA, USA), Debra Williston and Jeff Stern (King County, Seattle, WA, USA), and Pete Rude and Allison Crowley (City of Seattle, Seattle, WA, USA)

Background/Objectives. The East Waterway Operable Unit of the Harbor Island Superfund Site (EW) in Seattle, Washington, is a 1.5-mile-long, 157-acre, maintained commercial waterway located immediately downstream of the Lower Duwamish Waterway Superfund Site (LDW). The EW Feasibility Study (FS) developed sediment preliminary remediation goals (PRGs) based on natural background for total polychlorinated biphenyls (PCBs), dioxins/furans, and arsenic, because risk-based threshold concentrations for human health remedial action objectives for these chemicals were less than natural background concentrations. FS analyses showed that these PRGs are unlikely to be achieved following remedial action due to the urban setting of the EW and sediment inputs from Green River upstream of the EW and LDW. Sediments accumulating in the EW that are not related to EW sources contain contaminants greater than natural background. Therefore, the U.S. Environmental Protection Agency (EPA) determined it necessary to develop anthropogenic background (AB) estimates for total PCBs, dioxins/furans, and arsenic to help inform post-remediation contaminant concentrations in sediments.

Approach/Activities. A technical working group was formed to assemble and evaluate existing data, and then, if sufficient data existed, develop AB estimates. The FS determined sediment inputs to the EW are predominantly from the Green River (approximately 99%), with a very small amount from localized urban inputs (approximately 1%). This information, along with the EW physical conceptual site model, showed that in the long term, following site remediation, the EW surface sediments are expected to equilibrate to the sediment characteristics of material entering the EW. Therefore, the approach identified existing datasets that would be representative of suspended sediments entering the EW that are not associated with site releases. The assembled datasets were evaluated for acceptable quality and for adequate quantity for statistical evaluation. Ultimately, the suspended sediments dataset from the Green River (data collected just upstream of the LDW) was determined to be broadly representative of the upstream sediment loading to the EW.

Results/Lessons Learned. Other datasets such as bedded sediments were determined to not be representative of the remaining suspended material entering the EW after much is deposited in the LDW upstream. The suspended sediment datasets representing a wide range of flow conditions were used to estimate AB because chemical concentrations varied by flow, rainfall (watershed runoff), and an upstream dam release. The data were evaluated to support dataset refinement and adjustment, identify potential uncertainties, and develop AB estimates representative of particulate matter that reaches and settles in the EW. The selected AB values based on the 95% upper confidence level on the mean statistic were selected for total PCBs (31 micrograms per kilogram dry weight), for arsenic (20

milligrams per kilogram dry weight), and for four dioxin/furan congeners, which accounted for the majority of risk (ranging from 0.71 to 2.1 nanograms per kilogram dry weight). The results of this effort demonstrated a strong favorable collaboration between EPA, local municipal governments, and federally recognized tribes.